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ABSTRACT

The issues discussed in this paper center around the recent applications of laboratory-derived behavioral principles and techniques to everyday situations and problems, particularly those concerned with educational practice. A brief review of the ways that behavior modification has been used in education to date is included. Basically, the discussion focuses on three critical issues. The first involves the extent to which behavioral principles can contribute to the selection and specification of educational objectives, and the design of programs to meet these objectives. The second issue involves the shifting of emphasis from the early behavioral focus on environmental control shaping the child to consideration of how the environment can be manipulated so that children learn to control their own behavior and effectively change their environments. The third area of concern is the importance of systematic study of various methods of educational change, so that effective strategies can be identified. (DP)

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Behavior Modification in Education: A Few Opinions on Critical Issues

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Paper presented at 1973 APA Convention, Montreal, Canada as part of a symposium on Behavior Modification in Education.

When a new psychological approach promises to be successful, the men who carefully nurtured and developed the technique, despite prevailing opposition to innovation, suddenly find themselves faced with a totally new set of problems and questions, arising out of the very success of their approach. First, there is an increased public demand for application of the new approach to many areas in which it is not yet been sufficiently tested, and a progress-oriented public clamours for immediate use of the techniques to yield instant solutions. Secondly, critical attacks on the techniques emerge not only with regards to their intrinsic problems. Many skeptics also find fault with the shortcoming of the new methods to provide full and comprehensive coverage of all human experiences. Finally, faced with the onslaught of demands by critics and friends alike, a slowing down of exploratory work usually follows, and then a phase of consolidation sets in, in which accomplishments that have been made to date are placed in proper perspective. All of these by-products of success seem to be befalling behavior modification as it approaches the end of its first decade.

In the area of education, the technology of behavioral engineering has been successfully used in five major ways:

(1) Learning principles have been applied to shaping new behaviors, leading to faster acquisition of skills and knowledge, combined with advancing technology in other areas

(2) New hardware has been provided to implement the application of learning programs, making possible a breadth of application that was not dreamed of in earlier stages of development

(3) The advent of programmed learning approaches has resulted in a critical re-evaluation and analysis of educational curricula and goals

(4) Clinical practices of behavior therapy have contributed to programs for improved classroom management of individual students and groups

(5) Behavioral analysis and modification programs have given rise to critical examination of the educational process and the institutions and social systems which facilitate this process

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An increasing literature attests to the progress in the technology of teaching, in classroom management, in development of hardware and software for the delivery of programs, and in many other areas, making it unnecessary for us to spend time on these matters here. In my talk today, I would like to concentrate instead on discussing some issues that have arisen in our attempts to translate technical knowledge into practice and to bring behavior modification out of the laboratories and out of the context of experimental projects into the public schools and homes, and into the life of every person who is concerned with the educational system in our country. Among the many problems that can be discussed here, I have selected three that I consider of greatest importance. In essence, I believe that attention must be given to the following, in discussion, as well as in research and field experimentation:

(1) I think that behavioral principles and the techniques of behavioral assessment and analysis are sufficiently advanced to aid in the selection and specification of educational objectives, and to assist in designing programs that can achieve these objectives.

(2) Early behavior modification approaches have emphasized the importance of the environment in shaping the child. Now that the critical role of behavioral consequences is better understood, it is time to shift again to a consideration of how environmental influences can be used so that the child can learn to control his own behavior and to change his environment in turn.

(3) Finally, I would like to discuss briefly the importance of devoting attention and systematic study to methods by which current educational systems can be changed; that is, to study the means by which a transition from current techniques to better ones can be carried out most effectively.

Perhaps an instructive example can be drawn from the early introduction of behavior therapy techniques into classroom management. In this area, direct application of successful techniques has often been made with little consideration of the total context in which it is applied, that is, with a minimal discussion of the educational objectives which were to be achieved and without anticipation of the results of successful application on the remainder of the system. Numerous papers have been published on specific methods for reducing disruptive classroom behavior, increasing the output of reading or arithmetic work, or altering individual pupil behaviors in class. Only recently, an exchange of opinion in the Journal of Applied

Behavior Analysis questioned the legitimacy of modifying classroom behaviors that results in increased compliance, docility, and obedience (Winett, Winkler, 1972, O'Leary, 1972). In most instances, behavior modifiers have responded to requests by teachers to help them solve classroom management problems. That they have done so successfully has pleased some teachers, worried some educators, and led many professionals and layman eventually to raise the question whether such methods should be employed universally. Popular reaction in one city for example has resulted in preparation of a bill by one councilman suggesting that behavior modification be "outlawed" in the local public schools. Similar questions can be raised about the hazards in programming the contents of a biology or chemistry course without further examination of the material. One must question whether the material is appropriate for a child at a given time and to what advantage a child may use such information outside the classroom. In other words, application of a successful technique demands that we examine carefully its ultimate effects both on the child and on the current practices.

In a broader sense, this question has been raised by Alvin Weinberg in distinguishing what he calls a "technological fix" from social engineering. He points out that it is relatively simple, and terribly tempting, to provide quick and easy solutions for problems without examining the context in which they have arisen. A technological fix is a temporary solution. For example, removal of lead from gasoline reduces the lethal content of exhaust gases in the atmosphere. It contributes nothing to the solution of the long-range problem of providing transportation by means other than the automobile, or perhaps, what is more important, it discourages us from seeking alternative social arrangements which would reduce the need for power driven individual vehicles. Other examples of the technological fix are the attempts to offer birth control pills for the control of the population explosion, rather than to educate young persons appropriately and to reorganize the social value system with regard to parenting. Banning smoking ads on television and reorganizing welfare agency structures are similar examples of technological fixes. Applied to the educational area, Weinberg's distinction would suggest that currently behavior modification methods are widely used, not for social engineering but for temporary patching of problems that have arisen out of the very inadequacies of our current school systems. In this sense, behavior modification methods can be misused as technological fixes.

How then can the behavior modification movement contribute to the improvement of the educational system? It seems to me that the potential contributions of behavioral principles have not yet been exploited in a functional analysis of the school system and its role in our culture, nor in the development of goals and objectives for the systems that might lead to greater consistency between how the child is taught, what he is taught, and the purpose for which he is taught. Finally, some recent methods in behavior modification may also be applicable in providing a precise analysis of the role of the school in shaping social behaviors and individual capacities of the child, not only to absorb information and to behave appropriately in small groups, but also to react favorably to the pursuit of knowledge and to learn to apply such knowledge directly for his own benefit, and ultimately for the benefit of the society by improving the social and physical conditions under which he lives. One of the grossest misinterpretations of behavior modification methods by its critics has been the statement that the methods per se are dehumanizing, that they lead to conformity, that they discourage individuality, and that they make the child helpless and dependent on his environment. It is not the application of the behavioral psychology but the programmer's decision that determines what is learned and the degree to which the behavior remains under environmental control.

Most educational philosophers have recognized the importance of education, not only for socializing the child but also for training him to be a productive and contributing citizen. Essentially, they are addressing themselves to one of the most critical current problems, not only in education, but in our efforts to remedy the conditions that underlie many of our domestic social problems. Simply and almost naively put, this question concerns the development of a social system that would permit the individual maximal achievement of a variety of satisfactions and fulfillment of needs without jeopardizing the survival of the group of which he is part. And the balance between these two sets of values, the relationship between individual and group, is effectively established through the educational process. Both contemporary and past social systems have given ample illustrations of the fact that it is possible to shape children's behavior toward subordination of individual needs for the sake of group goals. In our current school systems, we seem to be emphasizing both objectives, the development of individuality and of socially conforming behaviors, without offering guidelines about their respective limitations. It seems that we would like to maximize both extremes at the same time.

A recent paper in the American Psychologist, Flannigan (July, 1973), emphasizes the importance of considering not only what is to be taught but how and for what. He believes that changes in our society have made it necessary for the schools to accept increased responsibility for preparing the student for an occupational role, preparing him for social and citizenship responsibility, and assisting him to find and explore satisfying leisure and recreational activities. It is the second goal, the preparation of citizenship, that often has been mentioned but has been so poorly defined that it is not surprising that neither teachers nor school officials can specify the particular behaviors they would like to develop to meet such objectives. Perhaps this goal could be phrased tentatively in psychological terms by saying that the school should aim toward the development of the child's capacity to be independent of momentary aspects of the environment, toward an awareness of his own behavior and his impact on others, toward the development of a set of standards toward which he can strive and by which he can evaluate his own behavior, and toward teaching him procedures for regulating his own rewards and aversive consequences of his acts. These psychological processes can be encompassed under the term of self-regulation.

In this area several researchers have recently been active, both in research reports and in proposition of tentative theoretical models. Until recently, the area of self-management has not been the main concern of behavior modifiers. However, there is no reason why the sophisticated and complex behavior involved in self-management cannot be approached and taught by the same basic behavioral principles as other responses. Perhaps the issue can be stated this way; until recently, and in quite necessary contrast to previous psychological approaches, it has been emphasized that behavior is shaped by the environment, and especially by the effects of the person's action on his environment. The emphasis on the reinforcement principle has led us to concentrate most of our efforts on ascertaining environmental effects on individual behavior. This is an approach that should continue to be fruitful both for changing behavior and for the analysis of individual and social situations. However, one ought to recognize also that we are continously dealing with a two-way interactual process. While man is shaped by his environment, he learns to change his controlling environment in turn. And such acts would come fairly close to what is popularly meant by becoming a responsible citizen.

Perhaps the underlying conception that differentiates contemporary behavioral approaches from the Watsonian type is that the Watsonian model

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is an open-loop behavior system. Stimulation affects organisms who then respond, and whose responses lead to consequences that weaken or strengthen the behavior on the next occasion. Supplementing this model with a feed-back loop however, that is, regarding human behavior as a closed-loop system, might be more useful in understanding the total complexity of man's interactions with his environment as well as himself. The frequent criticism of behavioristic approaches that they do not account for "self-awareness" is contradicted by recent efforts to incorporate into our understanding the effects of an action not only on the environment but also on the person himself. What we do is shaped by our environment but also affects us, affects our evaluation of ourselves and our future selection of environments that provide more positive consequences and also a better base for better positive self-evaluations and self-reinforcements. Finally, such feed-back about our own behavior can lead us to change environments in order to provide better opportunities for carrying out actions that are in our repertoire. Thus, one of the important goals in education would be to teach the child not only to acquire and retain information or to exercise various skills more adequately, but also to develop a repertoire for self-directing behavior, to motivate him to evaluate and, if necessary, to change not only his own behavior but the environment ~~to~~ in which he operates.

There is an increasing literature in the areas of self-management, self-control, and self-regulation, that suggests that behavioral techniques similar to those used for modifying motor responses and simple verbal behaviors can help children in the initiation of coping behaviors, in the setting of standards for their own performance, in the judicious administration of self-rewards and self-criticisms, and in the development of techniques for observing and monitoring their own behaviors. To me, these techniques represent the empirical approach to the problem of analyzing and altering "self-awareness" that phenomenologists and others have held up as the noblest of man's capacities, but have rarely analyzed into component processes, nor have prescribed methods for changing it.

In the past, attempts to socialize a child and to train him to be a responsible citizen have disregarded the fact that training for self-reliant behavior must be carried out no less systematically than training for reading, arithmetic, or typing. One gets the impression that educational philosophers in the past have assumed that learning latin or greek, sitting quietly in the classroom, participating in group play with peers, respecting the authority of the teacher, and other behaviors required of

the child in the traditional classroom somehow transfer to other situations or forge character traits that last a lifetime. One could object by saying that in the past children generally did seem to develop positive social attitudes and self-reliant behaviors. It is interesting to ask why our current problems of truancy, rebellion, drop-out, and similar noncompliant behaviors were not as common in past decades. Perhaps one answer lies in the fact that the daily activities in the school room of the past were much closer and much more consistent with the total experience of the child. That is, as many of our futurologists are so eager to point out, the increase in divergent models for behavior, the decrease of consistency and power of such controlling agencies as the family, the church, the child's neighborhood, and other social reinforcers, have robbed the school authorities and school curricula of their controlling power. It would be too much of a digression to discuss further the fascinating implications of these changes; however, they are not essential to my argument that any establishment of educational goals requires an honest recognition that we expect more of schools than the mere offering of information, but that we stress curricula that offer rewards mainly for recall of specific subject matter contents, the backbone of our grading system.

Let me pursue for a moment the implications of re-examining educational goals. Many contemporary writers deplore the decline of respect for wisdom and knowledge and for intellectual activities. Again, it is interesting to ask how this came about. But, let us ask instead, what can be done to remedy this. Even a brief analysis of the activities in the public schools yields some interesting starting points. Not only at the public school level, but even in the universities, one constantly encounters procedures and teacher behaviors that accept the assumption, often an incorrect one, that students dislike school. For example, I recently visited an elementary school in which the teachers had complained about the children's lack of interest in school. On the wall of the classroom was a large calendar on which the children would cross off each morning the remaining days until the end of the school year. Not only the children but also the teacher expressed considerable joy during this ceremony. So, what is exciting for the children about school, what is reinforcing for them, is the fact that it eventually terminates. In the classroom, good achievement is rewarded by reduced homework, teachers apologize for the difficulty of the material which they present, frequently characterize fun activities as physical play but never used such adjectives for school activities, and

behave in many ways consistently,in reinforcing children for verbalizing boredom, unhappiness and disinterest. At higher levels, the question of occupational relevance, the establishment of rules that limit or even punish intellectual efforts, and the tendency to play down intellectual accomplishments and failures all contribute to developing a behavior pattern in which the acquisition of knowledge is rewarded only by its immediate and specific effect in enhancing personal or material gain, power or control over resources, or over other people. It is obvious that a behavioral analysis and behavior modification programs could alter such behavior patterns. Careful selected reinforcement for positive statements about school activities, proper use of already established reinforcers related to the child's sense of achievement and pride, application of contingency management techniques, and many others are available. Perhaps a most basic requirement for enhancing the positive influence of the school and the child's development lies in a more systematic effort to establish first a love for learning. Might it not be possible to teach the child to be rewarded and eventually reward himself simply for knowing, for understanding, regardless of the immediate material gain to be derived from this knowledge? Recent research on self-management suggests that learning is enhanced by achievement of self-set criteria, the opportunity for self-evaluation, and self-reward, and the attribution of change in one's own behavior and the behavior of those around us to the child's own action. Educational innovators have long stressed the importance of teaching the child to explore his environment, to try new behaviors, and to pursue activities he enjoys. With behavioral techniques, the essential goal of these experimental approaches might be more easily realized.

Let me summarize what I have said so far. First, behavior modification techniques have been applied widely to facillitate learning and to eliminate non-conforming classroom behaviors. In so doing, however, they have only incidentally challenged current educational practices. They have not yet been applied extensively in the development of the child's repertoire for self-regulation and for active contributions toward the society in which he lives. It was suggested that new techniques make it possible to develop programs specifically for these purposes. If we seriously accept these educational goals however, we must raise new questions. Are our current schools equipped to handle these tasks? Is it possible to train children toward increased self-management in the physical settings in which teaching now takes place? To what extent can the training of

academic skills be integrated with training for social skills and self-management? And what training will teachers require to train these complex and value-laden behaviors? And the most important question is whether society is indeed willing to relinquish these responsibilities, which were traditionally held by the family, the church, and the community, to the teachers and to the principals of local schools.

Recent research in our own laboratories and in those of others (Meichenbaum, Mischel, O'Leary, Johnson, and others) have shown it is possible to teach children the use of verbal operants for control of their own behavior. They can be taught to increase tolerance of aversive situations, often demanded by the realities of their social environment, and they can be taught to delay the acquisition of powerful reinforcers. Children can be taught to reward their own behavior according to some specified contingencies, and when they are taught these techniques, their behavior on a given task becomes more efficient. The technical problems are overshadowed, however, by the social decisions that are required here. It is critical to ask first whether society wishes to have such training going on in schools. If schools were to establish systematic programs for increased self-control, increased reliance on self-set standards and on self-generated reinforcers, one would expect these children to develop into adults that are less easily controlled by external reinforcement contigencies, and perhaps less conforming and accepting of prevailing standards and mores. Clearly, these educational innovations would be experimental and long range effects would not be totally predictable in advance. The other side of the dilemma lies in the continued use of behavior modification techniques in the service of educational service and goals that are traditional and that are frequently inconsistent with psychological evidence concerning the most effective way of training children to achieve all the wonderful characteristics that are considered the mark of a good education.

The last issue that I want to discuss briefly is the problem of introducing change into school settings. All of us who have attempted to introduce behavior modification programs or a functional analysis into a school system have encountered common problems of resistance to change. Even though we may be convinced of the adequacies of our methods, and persuasive in our approach, the task of engineering the introduction of the program is one that itself requires application of behavioral principles. In a recent book, "The Creation of Settings and the Future Societies", Sarason addressed himself to the question of how to progress from today to

tomorrow. Social engineering requires the analysis of limitations, of the prevailing maintaining stimuli of the social system in action, and of the organizational structure as well as other factors that might limit or oppose change. In our own experience, we found that the proposal of a new program for an existing system is much less effective than the gradual re-evaluation of the current one and the introduction of successive small changes. We have also found it most useful to begin working at the top of the hierarchical structure. By discussion, informal courses, and joint analysis of school activities, in behavioral terms, a foundation can be laid for providing support to individual teachers toward carrying out new programs. We found it difficult to work with a teacher in isolation because of the failure to find support for her efforts, and the difficulties in obtaining resources required for implementing the approach. Frequently, this has resulted in discouragement of the individual teacher and with it, a disillusionment with behavioral techniques. We have also found that excessive enthusiasm about behavior modification, prior to an understanding of its empirical base and its neutrality with regard to objectives and contents, has resulted in unintentional sabotage by the participants, including lack of flexibility in applying the procedures, premature expectation of success, overenthusiastic misapplication of simple techniques to complex problems, and frequently overstated ethical and moral concerns about the controlling nature of the approach.

As behavior modifiers, many of us are intensely dedicated to promoting the welfare of the individual. In helping children, as in helping patients, we voice resentment of many social systems which restrict the individual, contribute toward shaping deviant behaviors and ultimately punish these same bahaviors. It behooves us however, to consider that one of the major problems encountered by behavioral engineers is to find a compromise between the maximum satisfaction of individual requirements without at the same time interfering with the ability of the social system to maintain itself. How much individual variation in class hours, recreational time, or rate of progress through subject matter a classroom can tolerate before it falls apart, is a question to be considered. What degree of self-determination or self-selection of subject matter or achievement criteria is feasible remains a matter of negotiation with the people who run the schools. The behavior modifier therefore must offer not only his technological assistance, or even himself as a model in executing various techniques, but he must also continually ask himself what effects the

introduction of the new approach would have on the current system and how a transition can be carried out most effectively.

In my discussion this morning, I've tried to share with you some of my thoughts about a few of the issues that are facing us in making a full contribution to our educational systems on the basis of our knowledge as psychologists. I do believe that we can help in the development of clear educational objectives that would permit the design of more efficient programs. Ultimately, of course, I believe that the choices and decisions about objectives should not be in the hands of psychologists but in the society whom the schools serve. I have pointed out my belief that we can supplement our techniques of shaping behavior by environmental control with methods that gradually train children to acquire control over their own behavior, and finally, I have emphasized the importance of recognizing the effects of introducing new techniques into an existing system and in aiding educators in making the transition from current to new settings.